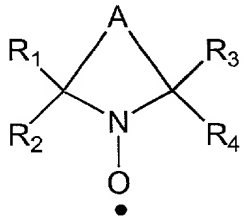
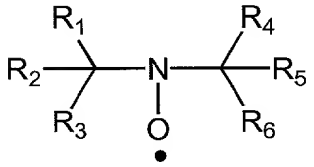
We Claim:

1. A method of oxidizing carbohydrates having primary alcohol groups comprising adding a hydroperoxide to the carbohydrate which is in contact with a nitroxyl radical mediator, wherein said method is catalyzed by a peroxidase enzyme in the presence of a halide.
2. The method of Claim 1 wherein the hydroperoxide is hydrogen peroxide.
3. The method of Claim 1 wherein the carbohydrate is a polysaccharide.
4. The method of Claim 3 wherein the polysaccharide is selected from the group consisting of starch and cellulose pulp.
5. The method of Claim 1 wherein the nitroxyl radical mediator is a di-tertiary alkyl nitroxyl radical has a formula selected from the group consisting of:



(I)

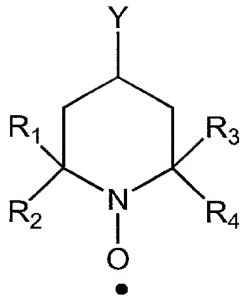
and



(II)

wherein A represents a chain of preferably two or three atoms, in particular carbon atoms or a combination of one or two carbon atoms with an oxygen or nitrogen atom, and the R groups represent the same or different alkyl groups.

6. The method of Claim 1 wherein the nitroxyl radical mediator has the formula:



where Y is H, OH, O-C(O)-CH_3 or NH-C(O)-CH_3.

7. The method of Claim 2 wherein the peroxidase enzyme is derived from an animal source.

8. The method of Claim 2 wherein the peroxidase enzyme is selected from the group consisting of lactoperoxidase ("LPO"), myeloperoxidase ("MPO"), eosinophil peroxidase ("EPO"), thyroid peroxidase ("TPO"), ovoperoidase, salivary peroxidase, and vanadium haloperoidase.

9. The method of Claim 1 wherein the halide ion is bromide.

10. The method of claim 9 wherein the peroxidase enzyme is LPO; the temperature of the reaction is kept between about 10 °C to about 70 °C; the pH is between about 3.0 to about 9.0; and the nitroxyl radical mediator is present in an amount of between about 0.01 to about 50 wt% by weight of the carbohydrate.

11. The method of claim 10 wherein the temperature of the reaction is kept between about 20 °C to about 50 °C; the pH is between about 4.5 to about 6.5; and the nitroxyl radical mediator is present in an amount of between about 0.1 to about 20 wt% by weight of the carbohydrate.

12. The oxidized carbohydrate prepared by the process of Claim 1.

13. A method of preparing nitrosonium ion comprising adding a hydroperoxide to a solution of a nitroxyl radical mediator, wherein said method is catalyzed by a peroxidase enzyme in the presence of a halide

14. The paper or absorbent product prepared from the oxidized carbohydrate of Claim 1.